

Attorney Docket: I-2003.010 US  
USSN 10/571,667  
Amendment and Reply

**Amendments to the Claims:**

1. (currently amended) [[A]] An isolated protein comprising an amino acid sequence selected from the group consisting of:

- i) SEQ ID NO: 2[[,]] and
- ii) immunogenic fragments of SEQ ID NO: 2,
- iii) SEQ ID NO: 4,
- iv) immunogenic fragments of SEQ ID NO: 4,
- v) SEQ ID NO: 6,
- vi) immunogenic fragments of SEQ ID NO: 6,
- vii) SEQ ID NO: 8,
- viii) immunogenic fragments of SEQ ID NO: 8,
- ix) SEQ ID NO: 10, and
- x) immunogenic fragment of SEQ ID NO: 10;

wherein said protein elicits the production of antibodies that interfere with inhibits invasion by Babesia bovis into erythrocytes of an organism of the family Piroplasmida .

2. -3. (cancelled)

4. (previously presented) A nucleic acid, wherein said nucleic acid encodes a protein according to claim 1.

5.-6. (cancelled)

7. (previously presented) A cDNA fragment comprising a nucleic acid according to claim 4.

8. (previously presented) A recombinant DNA molecule comprising

- i) a nucleic acid according to claim 4, or

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- ii) a cDNA fragment comprising (i);  
wherein said cDNA fragment or said nucleic acid is under the control of a functionally linked promoter.
- 9. (currently amended) A live recombinant carrier comprising
  - i) a nucleic acid according to claim 4,
  - ii) a cDNA fragment comprising [(i)] a nucleic acid according to claim 4,
  - iii) a recombinant DNA molecule comprising [(i)] a nucleic acid according to claim 4, or
  - iv) a recombinant DNA molecule comprising [(ii)] a cDNA fragment comprising a nucleic acid according to claim 4;  
wherein said cDNA fragment or said nucleic acid is under the control of a functionally linked promoter.
- 10. (currently amended) A host cell comprising
  - i) a nucleic acid according to claim 4,
  - ii) a cDNA fragment comprising [(i)] a nucleic acid according to claim 4,
  - iii) a recombinant DNA molecule comprising [(i)] a nucleic acid according to claim 4,
  - iv) a recombinant DNA molecule comprising [(ii)] a cDNA fragment comprising a nucleic acid according to claim 4,
  - v) a live recombinant carrier comprising [(i)] a nucleic acid according to claim 4,
  - vi) a live recombinant carrier comprising [(ii)] a cDNA fragment comprising a nucleic acid according to claim 4,
  - vii) a live recombinant carrier comprising [(iii)] a recombinant DNA molecule comprising a nucleic acid according to claim 4, or
  - viii) a live recombinant carrier comprising [(iv)] a recombinant DNA molecule comprising a cDNA fragment comprising a nucleic acid according to claim 4;

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wherein said nucleic acid or said cDNA fragment are under the control of a functionally linked promoter.

11. (previously presented) A vaccine comprising a protein according to claim 1 and a pharmaceutically acceptable carrier.

12. (previously presented) The vaccine according to claim 11, further comprising an adjuvant.

13. (previously presented) The vaccine according to claim 11, further comprising an additional immunoactive component or a nucleic acid encoding said additional immunoactive component.

14. (withdrawn) A vaccine comprising an antibody against a protein according to claim 1 and a pharmaceutically acceptable carrier.

15. (cancelled)

16. (currently amended) A prophylactic or therapeutic treatment of a disease ~~an infection~~ or [[its]] clinical signs caused by ~~a Piroplasmid organism~~ Babesia bovis comprising administering a vaccine comprising a protein according to claim 1.

17. (withdrawn) A prophylactic or therapeutic treatment of an infection or its clinical signs caused by a Piroplasmid organism comprising administering a vaccine comprising a nucleic acid according to claim 4.

18. (withdrawn) A diagnostic test for the detection of a nucleic acid associated with a Piroplasmid organism comprising

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- (i) a nucleic acid sequence depicted in SEQ ID NO: 1, 3, 5, 7, or 9,
- (ii) a nucleic acid that is complementary to (i), or
- (iii) a nucleic acid that hybridises to (i) under stringent conditions;

wherein (i), (ii) and (iii) each have a length of at least 15 nucleotides.

19. (withdrawn) A diagnostic test for the detection of antibodies against a Piroplasmid organism comprising a protein according to claim 1.

20. (withdrawn) A diagnostic test for the detection of antigenic material from a Piroplasmid organism comprising an antibody against a protein according to claim 1.

21. (previously presented) A vaccine comprising a nucleic acid according to claim 4 and a pharmaceutically acceptable carrier.

22. (previously presented) A vaccine comprising a cDNA fragment according to claim 7 and a pharmaceutically acceptable carrier.

23. (previously presented) A vaccine comprising a recombinant DNA molecule according to claim 8 and a pharmaceutically acceptable carrier.

24. (previously presented) A vaccine comprising a live recombinant carrier according to claim 9 and a pharmaceutically acceptable carrier.

25. (previously presented) A vaccine comprising a host cell according to claim 10 and a pharmaceutically acceptable carrier.